Heidelberg Retina Tomograph 3

Installation and System Configuration

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HEIDELBERG ENGINEERING

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General Information

The Medical Device HRT 3

The Heidelberg Retina Tomograph 3 (HRT 3) is a confocal laser-scanning device for the acquisition and analysis of three-dimensional images of the eye. The instrument specifically enables the quantitative description of the optic nerve head topography and time-related changes to it.

The most important routine clinical application of the Heidelberg Retina Tomograph 3 is to detect glaucomatous damage of the optic nerve head and the follow-up of glaucomatous progression. Another application is the measurement of retinal thickness maps for the diagnosis of retinal edema. Additionally the HRT 3 can be fitted with the optional *Rostock Cornea Module* that allows three-dimensional imaging of the cornea.

The HRT 3 System

The HRT 3 cannot be used alone. The minimum system configuration consists of a HRT 3 device, a personal computer with a display (e.g. a laptop or a desktop PC with a monitor) and the interconnecting cables.

The HRT 3 together with the connected computer and other connected devices constitutes a medical electrical system ("ME system") according to IEC 60601-1-1. This system must meet specific safety criteria as detailed in the standard and in this document. *Note that every connected device will become part of the ME-System even if the only connection is the power supply cord leading to a shared multiple socket outlet.*

WARNING The ME system may only be assembled by qualified personnel with training and knowledge in electrical safety, heeding all instructions and safety warnings contained in this document. It is especially important that all users that de-install and reinstall the system (for example in a mobile use scheme) are trained to do this in a safe way.

For setting up a safe system it is essential to read and understand the below sections *Electrical System Configuration* and *Safety Information*. These sections summarize the standard's requirements.

Regulatory Issues

The HRT 3 complies with the international IEC 60601 standard series concerning medical electrical equipment. These standards are published by the International Electrotechnical Commission and are the base of most national and regional standards for medical electrical equipment worldwide.

Some local standards contain deviations from the IEC versions. These standards include UL 60601-1 (USA), CAN/CSA C22.2 No. 601.1 (Canada), JIS T 0601-1 (Japan), AS 3200.1.0. (Australia) and others. *Wherever IEC 60601-Standards are mentioned inside this document, the according regulations of respective local standards are also implied.*

NOTICE Even though the HRT 3 already conforms to most local standards for medical devices in its default configuration, actual conformance can only be ensured by buying it from your authorized local Heidelberg Engineering distributor.

Safety Information

This section contains important safety information. Please read it carefully!

WARNING To avoid the risk of electric shock, the system must be installed in accordance to IEC 60601-1-1 or the corresponding local standard particularly with regard to the electrical leakage currents (see section "leakage currents"). Every modification to the system requires a new evaluation of the requirements of said standard.

WARNING If your system configuration includes a multiple socket outlet, do not place it on the floor as this entails the risk of liquid ingress or accidental mechanical damage.

WARNING Do not connect an additional multiple socket outlet or an extension cable to the system. This would lead to increased protective earth impedance and therefore to an increased risk of electric shock.

WARNING Do not connect additional devices to the system that are not part of the system or not specified as compatible to the system.

WARNING Do not use multiple socket outlets that are part of the HRT 3 system for other devices that are not part of the system (e.g. office equipment, domestic appliances). This would lead to increased electrical leakage currents and therefore to an increased risk of electric shock for both patient and operator.

WARNING Devices intended to be used together with a separating transformer (or '*isolating transformer*') may not be used without that transformer. A bypass of the separating transformer may lead to excessive electrical leakage currents and therefore to an increased risk of electric shock.

WARNING Do not touch the patient and parts inside access covers or contacts of connectors of nonmedical devices simultaneously.

WARNING Carry out all cleaning, adjustment, sterilization and disinfection procedures as specified in the enclosed instructions for use of the particular system components. Refraining from that may lead to infections or to bad measurement results that again may lead to a false diagnosis.

If a multiple socket outlet is used as part of the system, it must conform to IEC 60601-1-1, in particular it must only allow connection of power cords by using a tool.

All parts of the system can be used inside the patient environment if the requirements defined in this document and in the according standards are met.

For instructions for cleaning and permissible environmental conditions, see the enclosed instructions for use of the particular system component.

Hardware Installation

Unpacking the HRT 3

Carefully open the HRT 3 box (view from the top):

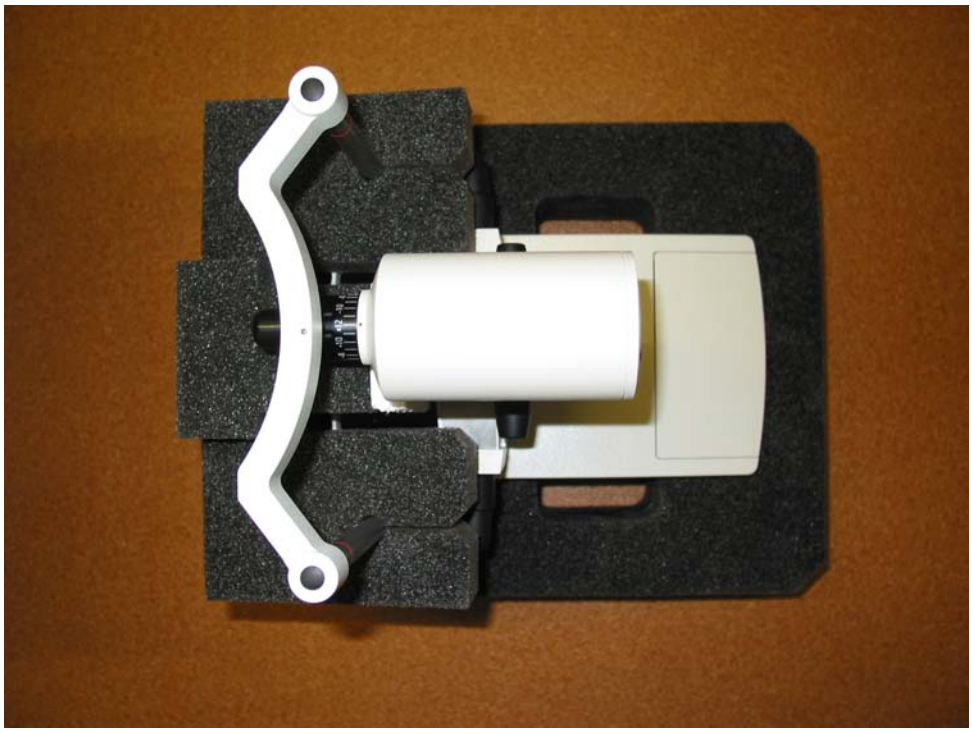
Remove the box on the right with the HRT 3 accessories (cables and external fixation lamp):

Remove the top foam cover:

Remove the bottom right foam cover:

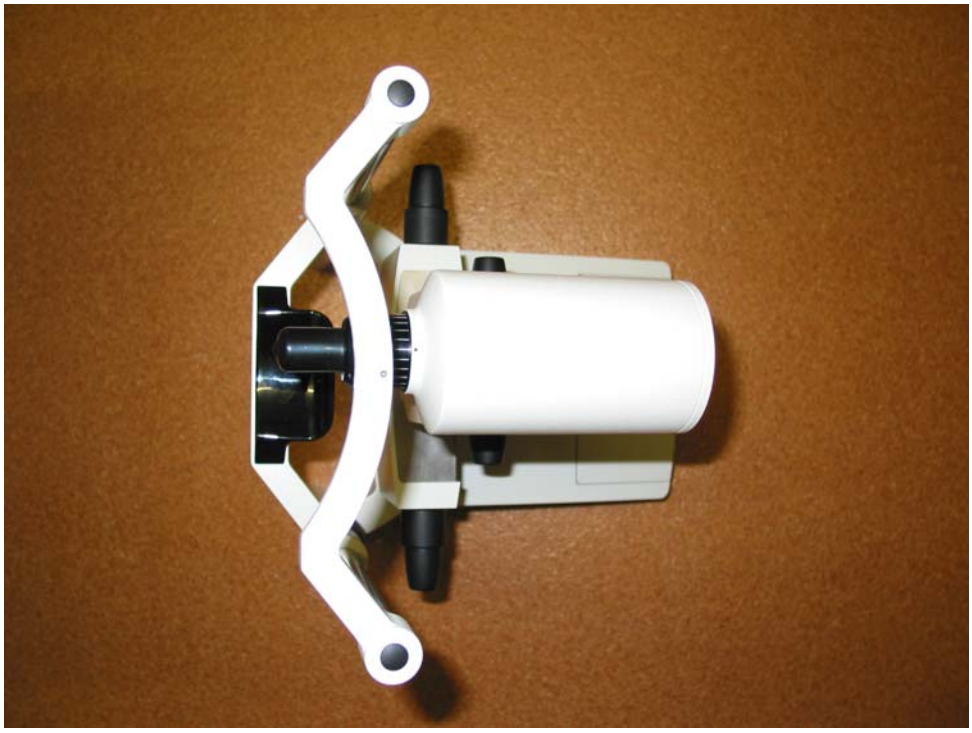
Recessed grips
at instrument base

Take the whole HRT 3 system out of the box, using the two recessed grips on the bottom of the system and place it on a plane surface:



Remove the front foam cover:

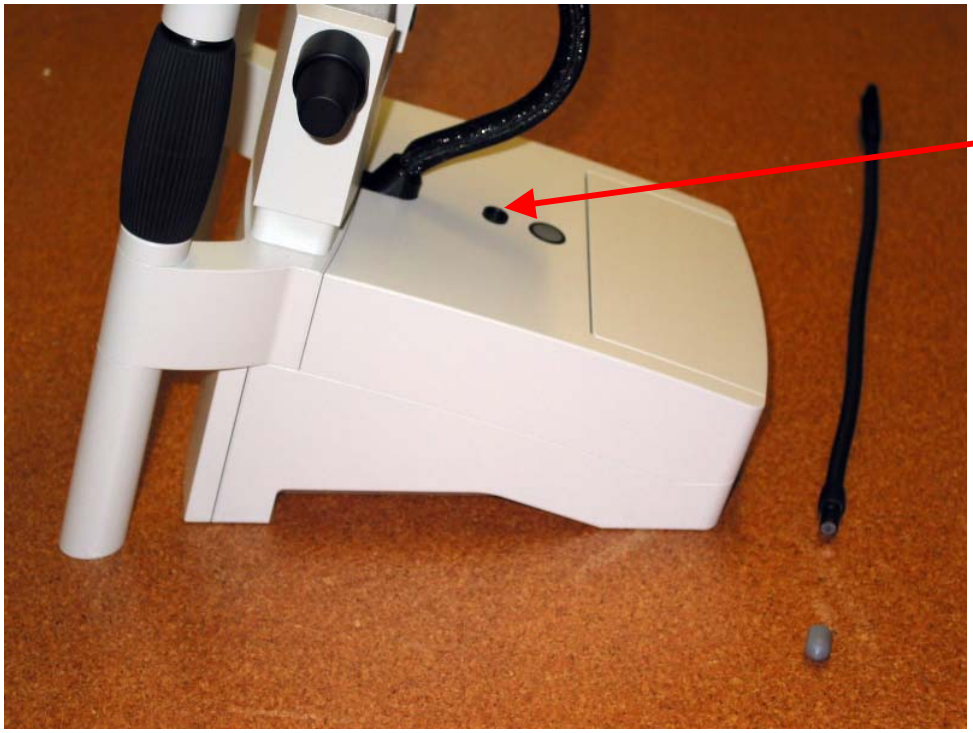
Remove the bottom foam cover:



Installing the External Fixation Light

The external fixation light is part of the HRT 3 accessories:

Unplug the gray fiber cover from one end of the fixation light:

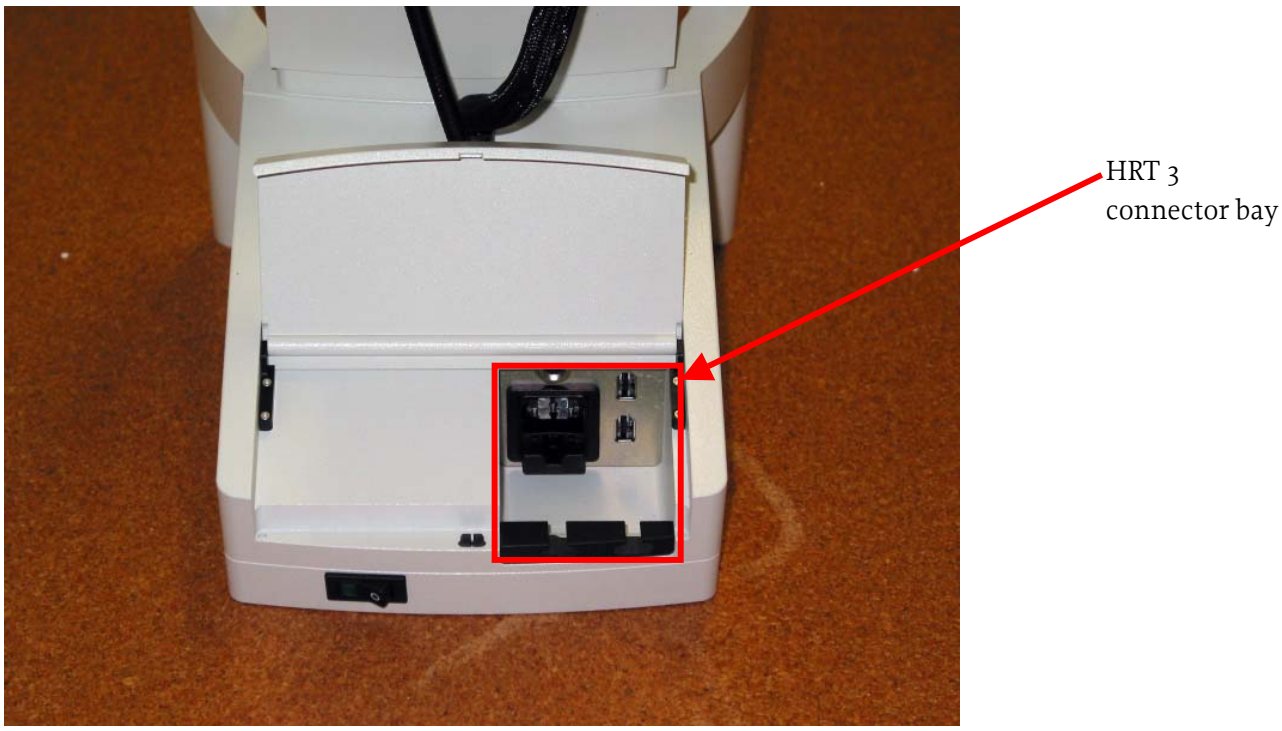


Socket for the external fixation light

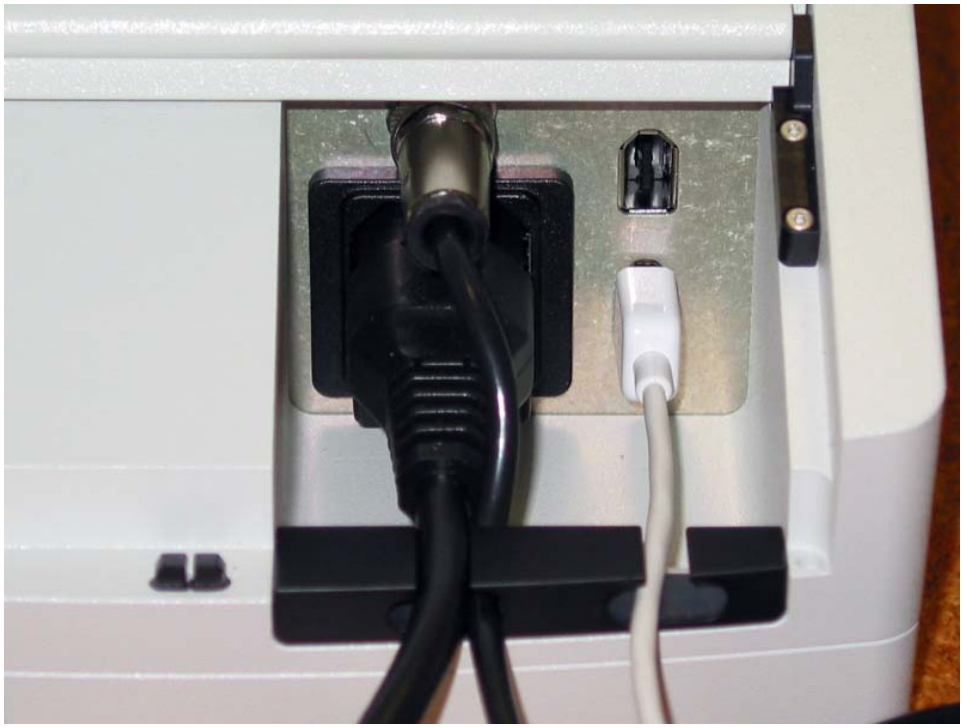
Tightly plug the external fixation light in the fixation light socket of the HRT 3:

Setting up Cable Connections

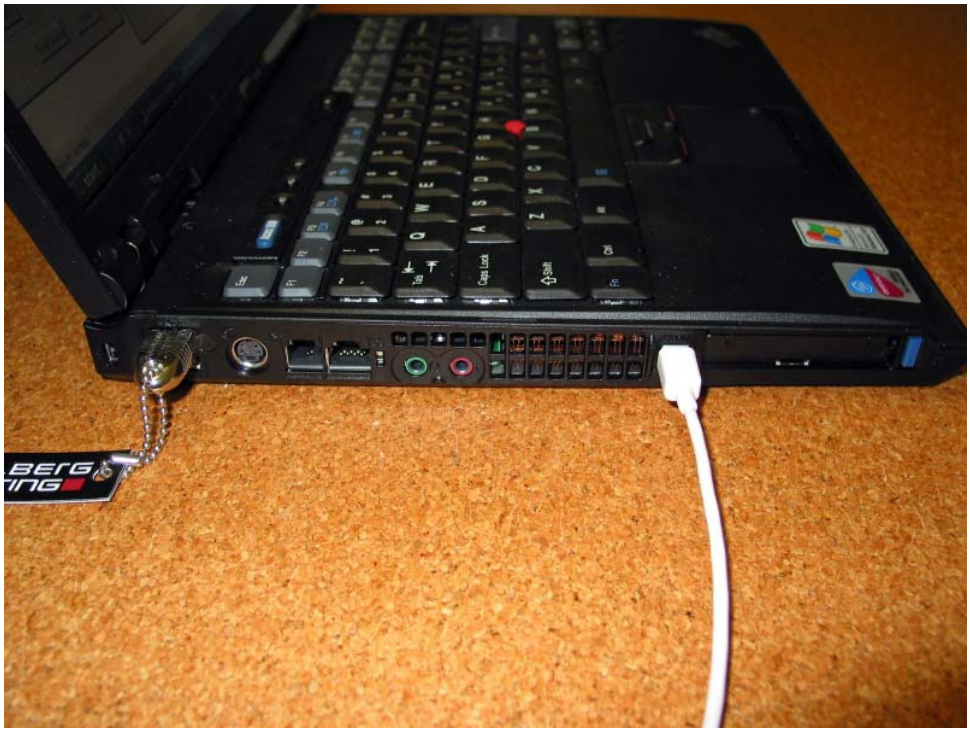
Open the cover on the backside of the HRT 3 base:



Connect the mains power cable and the FireWire™ cable. Optionally connect the foot switch cable (included with HRT 3 Rostock Cornea Module):



Attach the power cord to the power socket. Attach the FireWire™ cable. ***After software installation*** (see below) attach the USB software protector (dongle) to the PC (here Laptop computer):



To repack the HRT 3, repeat the above steps in reverse order. A HRT 3 carrying case is available as accessory. For instructions for packing and unpacking of the HRT 3 using the case, please look in its accompanying documents.

Electrical System Configuration

The HRT 3 together with the connected computer and other connected devices constitutes a medical electrical system (*ME-system*) according to IEC 60601-1-1. This system must meet specific safety criteria as detailed in the standards and in this document. *Note that every connected device will become part of the ME-system, even if the only connection is the power supply cord leading to a shared multiple socket outlet.*

Example: The HRT 3 is connected to a Laptop computer, the laptop computer is connected to a printer (via USB or WLAN). All devices are connected to the main power supply using a multiple socket outlet. An electrical table is also connected to the same multiple socket outlet. In this case, the "ME-system" consists of all devices: HRT 3, laptop, printer and table.

The basic principle when setting up a ME-system is that the overall safety of the system inside the patient environment is comparable to the safety of a single medical device. To ensure this, nonmedical devices that are part of the system must conform to their respective IEC or ISO standards (e. g. IEC 60950) and *additionally* must conform to the leakage current limits of the 60601-standard for medical devices.

Leakage Currents

The main concern for patient safety is the unintentional presence of accessible harmful electrical currents (*leakage currents*). Medical devices must show much lower leakage currents than ordinary office equipment.

Leakage currents are classified as follows:

- ***Earth leakage current*** is the current flowing from mains through or across the insulation into the protective earth conductor.
- ***Enclosure leakage current / touch current*** is the current flowing from accessible parts of the enclosure through an external part (*other than the protective earth conductor*) to earth or another part of the enclosure.
- ***Patient leakage current*** is the current flowing from patient connections through an applied part and from there via the patient to earth (applied parts of the HRT 3 are chinrest and headrest).

The permissible leakage currents are summarized in the following table:

[Current in mA]	Normal condition	Interrupted prot. earth conductor	Interrupted neutral conductor
Touch current between parts of the system*	0.1	0.5 *(0.3§)*	-
Touch current of each device* separately	0.1	0.5 *(0.3§)*	0.5 *(0.3§)*
Earth leakage current of each device	0.5 *(0.3§*+)*	-	1.0
Earth leakage curr. in multiple socket outlet	0.5 *(0.3§*+)*	-	1.0
Patient leakage curr. AC (type B appl. part)	0.1	0.5	0.5
Patient leakage curr. DC (type B appl. part)	0.01	0.05	0.05

**Inside the patient environment. §Deviation USA. +Only if conductive surfaces inside the patient environment exist that are likely to be contacted by patient or operator*

Mains Power Connection

The following options for a safe system configuration (conformant leakage currents) exist:

a) **Multiple wall sockets.** All devices (e.g. HRT 3, PC with monitor/laptop, printer, table) are connected to separate power sockets on the wall. This is the optimal configuration to reduce the risk of electrical shocks and leakage currents, but has the disadvantage that an appropriate number of wall sockets must be installed. In this configuration it is especially important to check the electrical installation: ***No significant potential difference must exist between the different protective earth terminals.***

b) **Multiple socket outlet.** All devices (e.g. HRT 3, PC with monitor or laptop, printer, table) are connected to a single multiple power socket outlet. In this case, the multiple socket outlet must conform to IEC 60601-1-1, in particular it may only allow connection of power cords by using a tool. The multiple socket outlet can be part of the table, but can also be a separate device. Below is an example of an IEC 60601-1-1 conforming multiple socket outlet with 4 receptacles:

Example of a medical multiple socket outlet open and closed (*POPP Powerline Medica*)

c) **Fixed protective earth conductor.** If the touch current of a device is too high, it can be decreased by the connection of an additional protective earth conductor. This conductor must be fixed to both the device in question and to the mains protective earth conductor. The connection must only be detachable by use of a tool.

d) **Separation Transformer.** A separation transformer can also be used to reduce leakage currents that are too high. Connect devices with excessive leakage currents to the mains power over the transformer.

e) **A combination of the above.** Also a combination of configuration a), b) and c) can be in conformance with IEC 60601-1-1 (e.g. HRT 3 is connected to a wall power socket, all other devices (e.g. laptop and printer) are connected using a multiple socket outlet). This configuration might be necessary to reduce the systems electrical leakage currents (see section leakage currents below). Any multiple power socket outlet must meet the criteria mentioned under configuration b).

WARNING Always make sure that the local electrical installation is conforming to the applicable local safety standards for medically used rooms (e. g. VDE 0700-710, JIS 1022...). The electrical installations should be checked in regular intervals (this is legally required in some countries).

WARNING For countries with regulations according to UL 60601-1, only use power plugs and sockets marked “hospital only” or “hospital grade”. Additionally plugs and receptacles must meet the requirements of UL 498. A violation may lead to an increased risk of electric shock due to a decreased earthing reliability.

Electromagnetic Compatibility

Make sure that only cables delivered with the HRT 3 or as specified in the HRT 3 installation manual are used to connect the HRT 3 to other system components. Make sure that all system components comply with their respective electromagnetic compatibility standards.

CAUTION The usage of improper cables can lead to increased electromagnetic emission and/or decreased electromagnetic immunity possibly leading to malfunction of the HRT 3 or other close-by devices.

System Conformance

When the system is set up, the organization or person that assembled the system must declare conformance of the system to IEC 60601-1-1 and/or further applicable local laws and standards.

Conformance to the aforementioned standard requires setting up a list with all system components. To meet this, please fill out the table below or add a separate sheet with the list of system components. Additionally the accompanying documents of each system component must be enclosed and the maximum permitted load of each multiple socket outlet must be specified.

List of System Components

The medical electrical system containing the HRT 3 was first set up on _____ *(date)*

It consists of the following components:

Component / Model	Serial Number	Comments
Heidelberg Retina Tomograph 3		

Multiple Socket Outlet	Serial Number	Maximum load [VA]	Comments

Comments: _____

_____

PC Requirements

The laptop or desktop computer to be used for the HRT 3 must meet the following requirements:

Operating System	Windows 2000 professional or Windows XP professional
Processor	1.7 GHz Intel Pentium (minimum)
RAM	256 MB minimum
VGA Board	High performance VGA board with at least 1024x768 resolution, 16 bit
Monitor	1024x768 minimum resolution
High-Speed Interface	IEEE1394 (FireWire / i.LINK) interface (1 port required)

Driver and Operating Software Installation

After the Heidelberg Retina Tomograph 3 hardware has been unpacked and connected to the computer, switch on the computer and the HRT 3 device and wait until the Windows operating system has been started up.

Driver Installation

At the first installation of the Heidelberg Retina Tomograph 3 device, the appropriate driver has to be installed. Because the HRT 3 is a plug & play device, the Windows hardware installation wizard will be started automatically.

Windows 2000: Click on “Next” to start the installation.

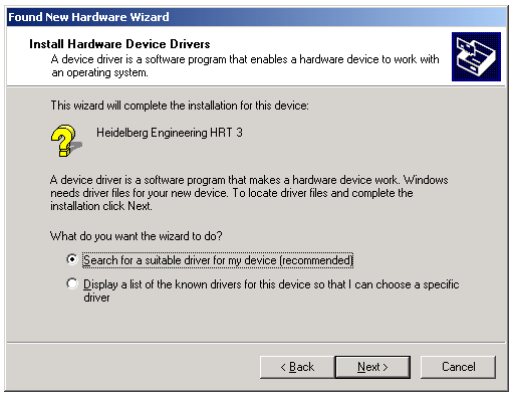
Windows XP: The installation wizard offers to connect to the Windows Update Web Site. Select “No, not this time” and click on “Next” to continue.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

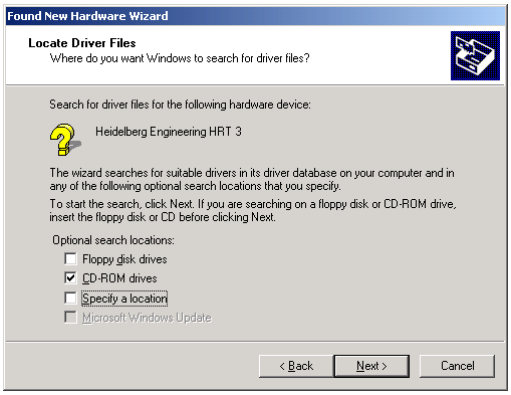
Insert the CD ROM labeled “Heidelberg Retina Tomograph” into the CD drive and select

on Windows 2000: “Search for a suitable driver for my device (recommended)”. Click on “Next” to proceed with the next step.

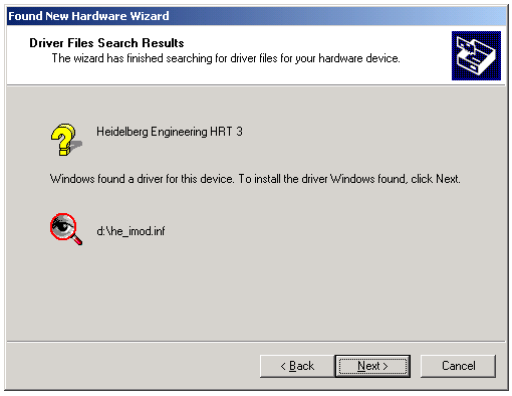
on Windows XP: “Automatic software installation (recommended)” Click on “Next” and Windows will automatically install the driver from the CD ROM.


Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
Heidelberg Engineering HRT 3
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

Only Windows 2000: Select “CD-ROM drives” as search location and select “Next” to continue with the driver installation.


Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
Heidelberg Engineering HRT 3
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

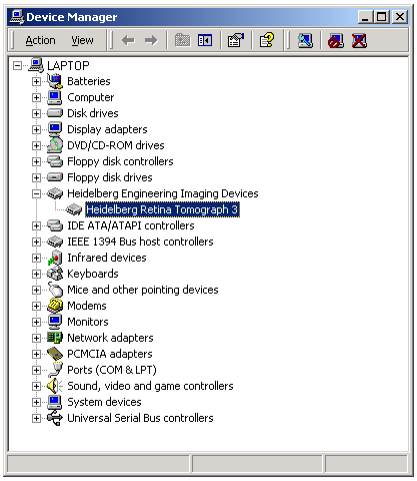
Only Windows 2000: The device driver information file “HE_IMOD.INF” for the Heidelberg Retina Tomograph will be found on the CD ROM. Click on “Next” to proceed.


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
Heidelberg Engineering HRT 3
Windows found a driver for this device. To install the driver Windows found, click Next.
d:\he_imod.inf
< Back
Next >
Cancel

Finally the driver for the Heidelberg Retina Tomograph 3 is installed properly.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
Heidelberg Retina Tomograph 3
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

To ensure the correct installation, open the Windows device manager (e.g. from the control panel) and check for the group named “Heidelberg Engineering Imaging Devices”. In this group, an entry “Heidelberg Retina Tomograph 3” should be listed.

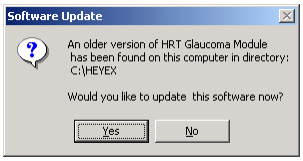


Operating Software Installation

To install the software for the Heidelberg Retina Tomograph, insert the CD-ROM “Heidelberg Retina Tomograph Glaucoma Module” or “Heidelberg Retina Tomograph Retina Module” or “Heidelberg Retina Tomograph Rostock Cornea Module” into the CD-drive and wait for the automatic startup of the installation program or manually run the “setup.exe” program from the root directory of the CD.

Operating Software - Update

In case of a software update (i.e. any older version of the Heidelberg Retina Tomograph software is already installed on the computer), the software will automatically detect the older software version and asks for updating:


Software Update
An older version of HRT Glaucoma Module has been found on this computer in directory: C:\HEYEX
Would you like to update this software now?
Yes
No

If you click on “No”, the installation program will continue with an interactive full installation procedure (see *Operating Software – First Installation* below).

If you click on “Yes”, the software will silently update the appropriate software modules required for the Heidelberg Retina Tomograph.

After the software update has been finished, you can optionally launch the Heidelberg Eye Explorer.

Setup Complete
Setup has finished installing Heidelberg Eye Explorer on your computer.
Setup can launch the Read Me file and Heidelberg Eye Explorer. Choose the options you want below.
Yes, I want to launch the Heidelberg Eye Explorer
Click Finish to complete Setup.
< Back
Finish

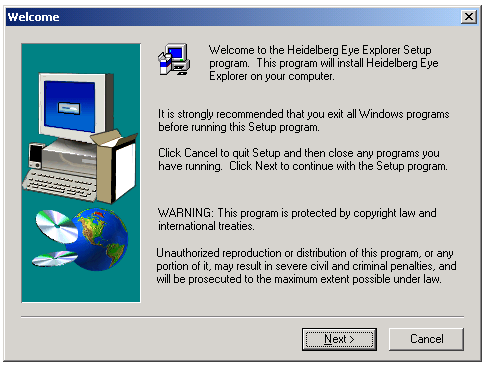
Operating Software - First Installation

Module Language

Select your language from the drop down list of the installation program dialog

.

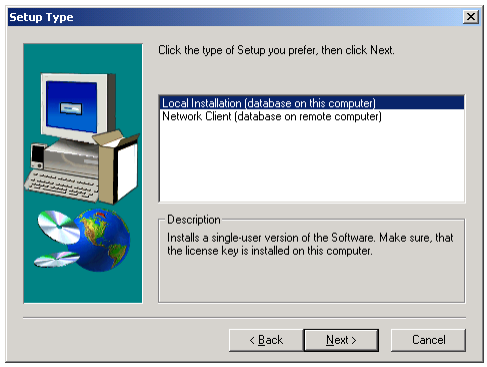
Welcome


Welcome
Welcome to the Heidelberg Eye Explorer Setup program. This program will install Heidelberg Eye Explorer on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

The Welcome dialog appears on the screen.

Click “Next” to continue the installation.

Select Setup Type


Setup Type
Click the type of Setup you prefer, then click Next.
Local Installation (database on this computer)
Network Client (database on remote computer)
Description
Installs a single-user version of the Software. Make sure, that the license key is installed on this computer.
< Back
Next >
Cancel

Select one of the following setup types:

- “Local Installation (database on this computer)” Choose this setup type, if you want to install the Heidelberg Eye Explorer on a single workstation without network clients. This installation will install an empty database.
- “Network Client (database on remote computer)” Choose this setup type to install the Heidelberg Eye Explorer on a workstation in a network. The “Network Client” installation will not install a database, because all workstations in the network will share the same database on a server. Install a “Local Installation” on the server – PC. The setup program will install an empty database. Install a “Network Client” on all additional workstations.

Destination Folder

Choose Destination Location
Setup will install Heidelberg Eye Explorer in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install Heidelberg Eye Explorer by clicking Cancel to exit Setup.
Destination Folder
C:\HEYEX
Browse...
< Back
Next >
Cancel

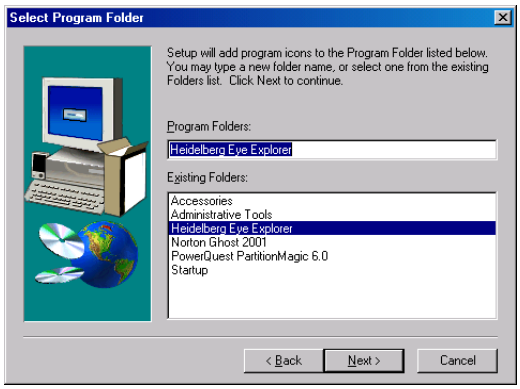
The installation program will ask for an installation folder. The default is “C:\HEYEX”, which is highly recommended. Do not change the installation folder if it is not absolutely necessary!

Click “Next” to continue the installation.

Program Folder

Select the program folder. The folder name will be accessible by the Windows “Start” button.

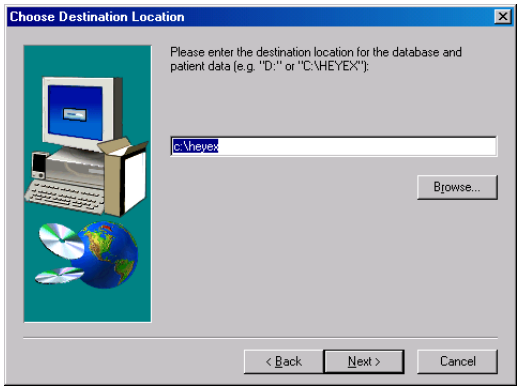
Click “Next” to continue the installation.


Select Program Folder
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the existing Folders list. Click Next to continue.
Program Folders:
Heidelberg Eye Explorer
Existing Folders:
Accessories
Administrative Tools
Heidelberg Eye Explorer
Norton Ghost 2001
PowerQuest PartitionMagic 6.0
Startup
< Back
Next >
Cancel

Database Location (Local Installation only)

In the case of a Local installation, a path to the root folder of the database and the patient data folders must be entered. The installation program will automatically create the subfolders DATA and PATIENTS in this specified folder. DATA contains the database file and PATIENTS will take up the patient data (acquired images etc.). If an external hard drive (e.g. FireWire hard drive) shall be used to store the database and patient data, you can enter the drive letter followed by a colon (e.g. F:).

Click “Next” to continue the installation.


Choose Destination Location
Please enter the destination location for the database and patient data (e.g. "D:" or "C:\HEYEX"):
c:\heyex
Browse...
< Back
Next >
Cancel

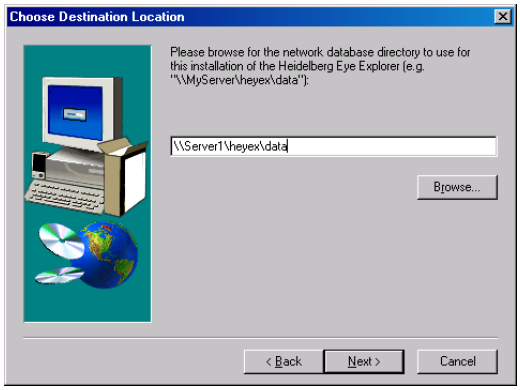
Database Location (Network Client only)

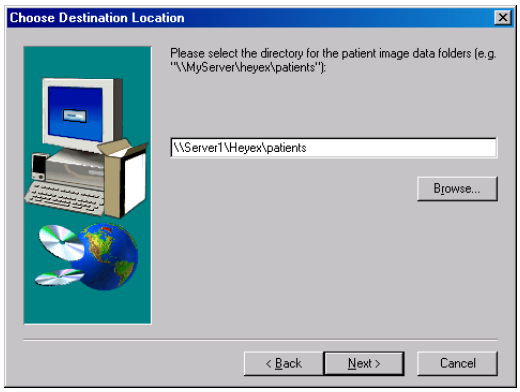
In the case of a Network Client installation, a path to the database folder and a path to the patient folder must be entered as indicated below.

For a network installation, the database and the patient folder on the server PC **must** be shared to allow **unrestricted** file access for client PCs. There are two ways to enter the server’s database and patient folder on the client computer:

- Map the shared database folder of the server PC to a local drive (e.g. drive letter ‘J’). Use the “Browse” button to navigate to the shared database folder on that mapped local drive (e.g. J:) and select it.
- Enter the UNC path of the shared database and patient folders. A UNC path begins with a double backslash and consists of the following elements:

  \\SERVER_NAME\SHARE_NAME\PATH


Choose Destination Location
Please browse for the network database directory to use for this installation of the Heidelberg Eye Explorer (e.g. "\\MyServer\heyex\data"):
\\Server1\heyex\data
Browse...
< Back
Next >
Cancel



The usage of UNC network path specification is **highly**

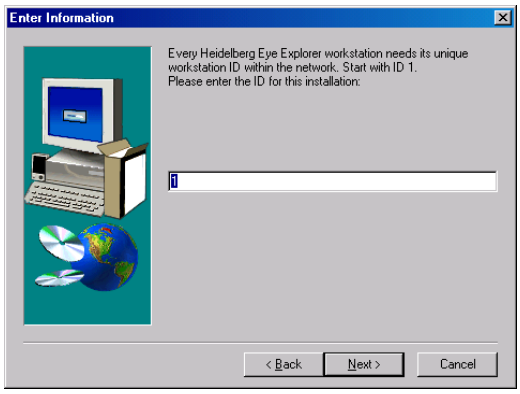
recommended, because a mapping of the shared file resources on the client PCs is not required. In addition, drive mapping can be easily lost if the client PC will be started before the server PC is running. Another problem with mapped network drives is that the drive letter may change if an additional disk device (e.g. Zip-drive) is temporarily attached.

Click “Next” to continue the installation.

Workstation ID (Network Client only)

A unique workstation ID is required for every client PC. Start numbering the clients with 2 and increment this value by 1 for every new client installation. The number of workstations, which can run at the same time, depends on the number of licenses purchased. The workstation ID must never exceed the number of licenses.

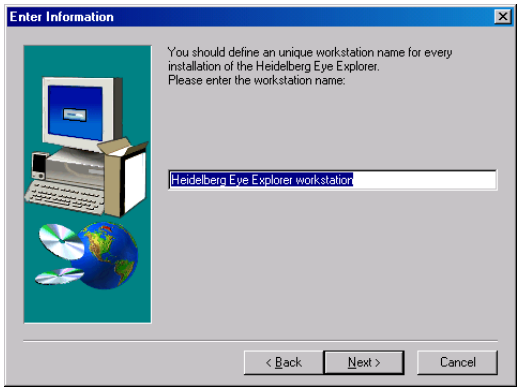
Click “Next” to continue the installation.


Enter Information
Every Heidelberg Eye Explorer workstation needs its unique workstation ID within the network. Start with ID 1.
Please enter the ID for this installation:
1
< Back
Next >
Cancel

Workstation Name (Network Client only)

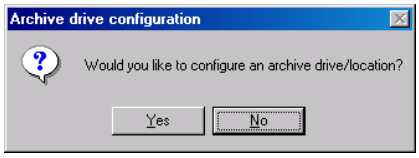
Enter a unique workstation name for every client installation.

Click “Next” to continue the installation.

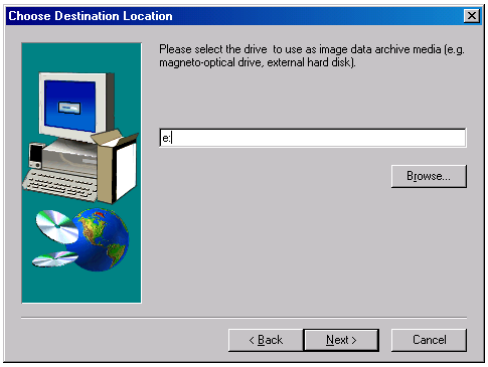

Enter Information
You should define an unique workstation name for every installation of the Heidelberg Eye Explorer.
Please enter the workstation name:
Heidelberg Eye Explorer workstation
< Back
Next >
Cancel

Archive Media

The installation program will ask for an archive drive. If you would like to configure a drive for archiving (e.g. magneto optical drive, or external hard drive), click on “Yes” to continue with the configuration of the archive drive.

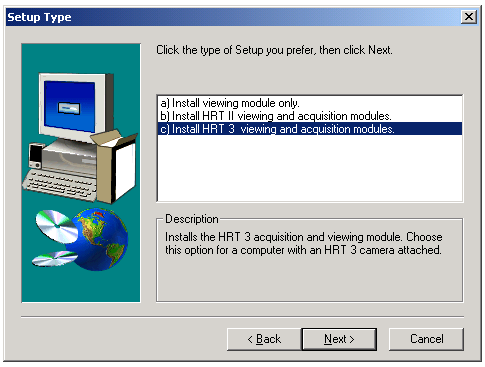


Enter the drive letter followed by a colon (e.g. E:) and click “Next” to continue the installation.


Choose Destination Location
Please select the drive to use as image data archive media (e.g. magneto-optical drive, external hard disk).
e:
Browse...
< Back
Next >
Cancel

Attention: This dialog looks nearly identical to the previous dialog for the patient data directories. However, at this screen, it is necessary that a drive/directory of the archiving device is specified. If the archiving device (Magneto-optical disks, external hard disk but no CD-RW) is assigned to drive letter E, then enter “E:” here.

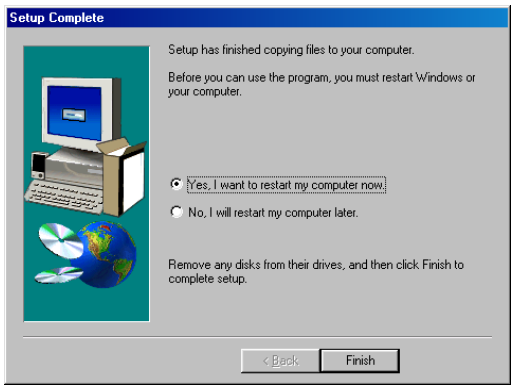
Select Setup Type


Setup Type
Click the type of Setup you prefer, then click Next.
a) Install viewing module only.
b) Install HRT II viewing and acquisition modules.
c) Install HRT 3 viewing and acquisition modules.
Description
Installs the HRT 3 acquisition and viewing module. Choose this option for a computer with an HRT 3 camera attached.
< Back
Next >
Cancel

Select the appropriate setup type. If an HRT 3 device is attached to the computer, choose “Install HRT 3 viewing and acquisition modules”. If an HRT II device is attached to the computer, choose “Install HRT II viewing and acquisition modules”. If no HRT device is attached to the computer, choose “Install viewing module only” (usually on network clients and pure viewing stations).

Click “Next” to continue the installation.

Setup Complete


Setup Complete
Setup has finished copying files to your computer.
Before you can use the program, you must restart Windows or your computer.
Yes, I want to restart my computer now.
No, I will restart my computer later.
Remove any disks from their drives, and then click Finish to complete setup.
< Back
Finish

The installation is finished now. You must reboot the computer before you try to operate the system

Appendix A: HEYEX.INI Settings

The text file “HEYEX.INI” is the main configuration file for the Heidelberg Eye Explorer. By default, it is located in the “C:\HEYEX” directory. The following list contains a description about all important configuration keys:

Section `[Settings]`

`Workstation`

This key specifies the workstation name.

Example:

```
Workstation=HRT PC
```

`WorkstationID`

This key specifies the workstation ID number. This number has to be a positive number and must be unique within a network installation. If two workstations have the same `WorkstationID`, only one of them can run the HEYEX software at the same time.

For a single user installation, this value has to be set always to `1`.

Example:

```
WorkstationID=1
```

`User`

This key specifies the login name of the user last logged in. This key should not be changed manually.

Example:

```
User=smith
```

`HardDiskArchive`

This key enables (`=1`) or disables (`=0`) the hard disk archive mode. If the hard disk archive mode is enabled, the automatic cleanup is disabled, and no images will be removed from the hard drive after archiving even if specified under the section `[ArchiveSettings]`.

Example:

```
HardiskArchive=1
```

Section [System]

DataPath

This key specifies the complete directory, where the database file (normally 'hr.mdb') is located. The path can be either a DOS-style path, including a drive letter, or a UNC (Universal Name Convention) file name like '\\servername\path'. In case of a network installation, please make sure, that the workstation/user has full access (read/write/delete) to `DataPath`. In a network environment, all HEYEX installations have to use the same `DataPath` setting.

Example:

```
DataPath=c:\heyex\data
```

Or

```
DataPath=\\nt_server\heyex\data
```

Section [PatDir]

Count

This key specifies the number of patient directories specified within this section.

Example:

```
Count=3
```

Path1, Path2, Path3, ...

These keys specify the different paths to be used to store the patients image data. The number of keys must match the value of the `Count` key described above. In case of a network installation, please make sure, that the workstation/user has full access (read/write/delete) to all `DataPaths`. The Path can be specified in DOS or UNC file name convention. In a network environment, all HEYEX installations have to use the same Path1, Path2, ... settings. To optimize the HEYEX performance, minimize the number of paths (`Count`-value) and don't use more than one path per partition. In any case, do not use root directories as patient data folders; their capacity is limited by some operating systems.

Example:

```
Path1=c:\heyex\patients
Path2=d:\heyex\patients
Path3=\\nt_server\heyex\patients
```

Section [ArchiveDir]

Count

This key specifies the number of archive directories/drives specified within this section. Typically the `Count` value is `1` (i.e. one archive device)

Example:

```
Count=2
```

Path1, Path2, Path3, ...

These keys specify the different paths to be used to archive/access/retrieve patients image data. The number of keys must match the value of the `Count` key described above. In a typical installation, there is only one key. The Path can be specified in DOS or UNC file name convention. ***The path must specify the root of the archive drive, do not specify subdirectories.*** To be able to archive to one of the specified paths, the workstation/user needs write-access to the device.

Example:

```
Path1=e:
Path2=\\nt_server\opt_disk_drive
```

Section [ArchiveSettings]

DelType0104=6

Allows the Eye Explorer software to remove HRT II ONH scans (3D images) immediately from hard disk after they have been archived successfully. This allows as many topography images as possible to remain on hard disk so that they can be accessed immediately.

If `HardDiskArchive` is enabled, this key will be ignored.

To disable this feature remove this line from the HEYEX.INI or set the key to be `0`.

DelType0107=16

Allows the Eye Explorer software to remove HRT II Retina scans (3D images) immediately from hard disk after they have been archived successfully. This allows as many macula maps as possible to remain on hard disk so that they can be accessed immediately.

If "HardDiskArchive" is enabled, this key will be ignored.

To disable this feature remove this line from the HEYEX.INI or set the key to be `0`.

ProtType0204=6

Prevents the HRT II topographies from being removed from hard disk by the automatic cleanup procedure. To disable this feature remove this line from the HEYEX.INI or set the key to be `0`.

ProtType0205=16

Prevents the HRT II macula maps from being removed from hard disk by the automatic cleanup procedure. To disable this feature remove this line from the HEYEX.INI or set the key to be `0`.

Section [Acquisition]

DefaultDevice

Specifies the default device that appears in the Examination Data dialog when starting a new examination.

By default no device is listed in the Examination Data dialog if there is more than one acquisition module installed (e.g. ONH and Retina acquisition module). With this key you can specify which device type is always displayed by default when you start a new examination. The configured value for this key is only valid if the appropriate acquisition module has been installed; otherwise this key is ignored.

`DeviceType=-1`	Display last acquisition module used as default.
`DeviceType=0`	Do not display any default device.
`DeviceType=1`	Display HRT ONH (Classic) acquisition module as default.
`DeviceType=3`	Display HRA acquisition module as default.
`DeviceType=6`	Display HRT ONH acquisition module as default.
`DeviceType=16`	Display HRT Retina acquisition module as default.

Example:

The HRT ONH and Retina acquisition modules have been installed on the computer. The OHN acquisition module should always appear as default device type in the Examination Data dialog.

```
DeviceType=6
```

Appendix B: HRTS.INI Settings

The text file “HRTS.INI” is the main configuration file for the Heidelberg Retina Tomograph II software. By default, it is located in the plugins directory of the Heidelberg Eye Explorer “C:\HEYEX\plugins”. The following list contains a description of all important configuration keys:

Section [Viewer]

CompressSeries

NOTE: Compression will save a significant amount of disk space and will not affect the original mean topography image. However, a minimal amount of data loss may occur in the originally acquired data if it is decompressed.

`CompressSeries=0`	No data compression of acquired 3D images
`CompressSeries=1`	Data compression of acquired 3D scans enabled

Section [BoardType]

Model

`Model=1`	ME-14 Meilhaus Digital I/O board, ISA (default)
`Model=2`	“PCard” Digital I/O, PCMCIA
`Model=3`	ME-1400 Meilhaus Digital I/O board, PCI
`Model=4`	Heidelberg Engineering IEEE1394 hardware (HRT 3)

Specifies the installed digital I/O hardware. If the configured board type does not match to the installed hardware, an error message will appear at startup of the Heidelberg Eye Explorer software.

FGModel

`FGModel=1`	Matrix Vision frame grabber PCimage-SGVS (PCI) (default)
`FGModel=2`	Data Translation frame grabber DT3152
`FGModel=3`	Heidelberg Engineering IEEE1394 hardware (HRT 3)

Specifies the installed frame grabber hardware. If the configured board type does not match to the installed hardware, an error message will appear at startup of the Heidelberg Eye Explorer software.

Frequently asked questions

Q: During live mode, the button in the lower right corner of the acquisition window turns from green to red and there is no live image. Why?

A1: The communication between the camera and the computer was interrupted.

Quit the Heidelberg Eye Explorer and start it again. This will reinitiate the communication.

If this behavior occurs when moving the camera from one side to the other, switch off the camera before you move it. To switch the camera on and off click the button in the lower right corner of the acquisition window.

A2: The FireWire cable is not properly connected to the rear of the computer

Make sure that the FireWire cable is plugged in properly at the rear of the computer and at the HRT 3.

Q: In the *Show Result* menu, I see 4s and 6s instead of green check marks and red crosses. Why?

A: Probably the font “Monotype Sorts” is not correctly installed.

Open the folder C:\WINDOWS\FONTS in Windows Explorer and double click the file MTSORTS.TTF. The font viewer opens, displaying the font. Click the ”Done” button to quit the font viewer and reboot the system. The 4s and 6s should be displayed as check marks and crosses now.

Q: When I double click on the “Shortcut to Removable Disk” icon on the Windows Desktop to format an optical disk, why do I get a message that reads *”The drive or network connection that the Shortcut refers to is no longer available.....”*

A: Windows is no longer associating the shortcut with the optical drive. To correct this, right click on the “Shortcut to Removable Disk” icon, left click on delete and click on Yes to send it to the Recycle Bin. Next, open “My Computer” on the desktop, right click on Removable Disk, left click on Create Shortcut and left click on Yes to place the new shortcut on the Desktop. Close out of My Computer and the new Shortcut will be on the Desktop.